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“PREPARATION FOR PERFORMANCE”

Details from Audrey Lyndon, the Secretary
ISSTIP, Gispy Hill Centre, Kingston Polytechnic, Kingston-upon-Thames KT2 7LB

Editorial

Here is another issue of the ISSTIP Journal in which we have tried to include papers from as many different areas of interest as possible. The ISSTIP Conference on Medicine for the Performing Arts received a great deal of publicity and interest and was well attended. For us it was very stimulating to meet many people from so many backgrounds from all over the world—teachers, performers and therapists of all kinds. Particularly fascinating was the difference in attitude between the different sectors of artistic activity. The world of dance has long understood the benefits of close collaboration with the medical and paramedical professions. There was also a great deal of discussion on the dietary needs of dancers and on the extent to which techniques can be taught. Dance is an activity that most obviously takes place at the limits of human performance, with injury a frequent hazard. It is only recently, however, that the problems of instrumental musicians have come to wider attention. The reasons for this are controversial and somewhat difficult to appreciate. Music like dance is a culturally defined activity which is so far unused to the interests of professionals outside its existing boundaries. Some musicians have alleged that it is only the interest of doctors that has produced an “epidemic” of the controversial so-called “overuse injuries”. There are however, other explanations. The nature of these problems is poorly understood and there is still controversy as to whether muscle can injure itself. Again some teachers will query whether the psychological aspect of the problems of performing musicians has been adequately addressed. Our view, however, is that there has always been a background of performance related problems particularly in the players of *hand held* instruments and it is in the interest of the musical profession to understand that early assessment of the problem can prevent much greater problems later on.

Workshops conducted by outstanding artists and pedagogues for all type of performers—actors, musicians, dancers—gave the participants a valuable opportunity to learn about their individual needs in a less formal situation. These were held in the magnificent Great Hall of the St. Bartholomew's Hospital thus allowing a true blending of the architecture and the performing arts. The discussions that emerged brought to light the extent to which performers are using complementary medicine in trying to find some answers to their physical or psychological problems created by tensions. These also emphasised the danger of “misuse” rather than “overuse” of muscles through wrong technique as well as the need to study the problems in all their aspects by all those concerned—doctors, psychologists, therapists, performers, teachers, students. It is ISSTIP's role to create the opportunities for such studies.

The conference organisers would like to pay tribute to the members of the committee, and particularly to Audrey Lyndon and Barbara Low for their contribution to the success of this venture.

The Editors

ISSTIP Journal No. 5 will carry the proceedings of the 1987 International Conference.

Brief Cognitive-Behavioral Group Counseling for Musical Performance Anxiety

Abstract

The purpose of this study was to evaluate the effectiveness of group counselling for musical performance anxiety reduction using a cognitive-behavioral approach. Seventeen music performance majors were assigned to a treatment or delayed-treatment control group. The six treatment sessions are described session-by-session. Methods included cognitive self-instruction, relaxation training, imagery and behavioral rehearsal. Pre- and post-treatment measures included self-report and music teachers' ratings of students' anxiety during performances. Results indicated reduction in performance anxiety and state anxiety. Teachers' ratings of students receiving treatment indicated improvement. Three months follow-up measurements indicated that gains in performance anxiety reduction were maintained.

Introduction

Performance anxiety, often referred to as ‘stage fright’ among performers, is quite a common experience for musicians (Triplett, 1984; Kendrick, Craig, Lawson & Davidson, 1982; Lehrer, 1982). Although recently there have been a few studies using cognitive-behavioral approaches to therapy with anxious musical performers (Kendrick, Craig, Lawson & Davidson, 1982; Nagel, Himle & Papsdorf, 1982), this problem has received relatively little attention in the psychological literature.

In a controlled study, Kendrick, et. al., (1982) compared the effectiveness of cognitive-behavioral therapy and behavior-rehearsal in reducing anxiety in pianists who experienced extreme anxiety in performance situations. The therapist for both treatment groups was a psychologist and pianist. Results indicated that, although there were no differences among treatment groups at treatment termination, both the cognitive-behavioral therapy and behavior-rehearsal programs were effective in reducing musical-performance anxiety in comparison to the control condition at the follow-up assessment. Cognitive-behavioral therapy was more effective than the behavioral rehearsals program on several measures.

Nagel, Himle & Papsdorf (Note 1) evaluated the effectiveness of a treatment approach to musical performance anxiety which combined the use of progressive muscle relaxation, cognitive desensitization and temperature biofeedback training. Twenty music performance majors with debilitating anxiety received six weeks of group sessions and six weekly sessions of individual biofeedback temperature training. This treatment group was compared with a wait-list control group of eight students. The results indicated that the cognitive-behavioral treatment procedures were effective in reducing musical performance anxiety, trait anxiety, test-taking anxiety and two factors pertaining to rational beliefs.

The purpose of the present study was to evaluate the effectiveness of a brief cognitive-behavioral group approach in reducing musical performance anxiety conducted by a non-musician therapist. Also, as previous studies have not used evaluation by subjects' music teachers, it was of particular interest to obtain an evaluation of the effectiveness of treatment in reducing anxiety by the musicians' teachers of music performance.

Predictions were that:

- (1) those receiving treatment for musical performance anxiety would report less anxiety related to musical performance than the wait-list control group; and
- (2) teachers would rate students receiving group counseling as less anxious at post test than at the initial assessment.

METHOD

Pilot Study

A pilot study was conducted with a total of seven junior and senior music performance majors. Subjects were volunteers for a 'Music Performance Anxiety Reduction Group' at the University Counseling Center in a Southern California university. One subject left midway through the group sessions to join an orchestra. She returned to a later group session to describe her success in applying anxiety reduction strategies, during the intensive auditions for the orchestra position, but she did not participate in post-testing.

Eight sessions of 90 minutes each, using cognitive-behavioral interventions based on Meichenbaum (1977) and Fremouw and Gross (Note 2) were conducted.

Pre-treatment and post-treatment measures were the Performance Anxiety Inventory (PAI) (Nagel, Himle & Papsdorf, 1982), Test Anxiety Inventory (TAI) (Spielberger, 1980) and the State anxiety component of the State-Trait Anxiety Inventory (STAI-A-state) (Spielberger, Gorsuch & Lushene, 1970). Significant differences indicating reduced post-treatment anxiety between pre- and post measurements were observed on the PAI, $t(5)=5.43$, $p <.005$ and the TAI, $t(5)= 3.17$, $p <.05$. Differences on the STAI (A-state) were not significant although a trend was in the favourable direction, $t(5)=1.74$ ($.05 <p <.10$).

Results were sufficiently encouraging to warrant further investigation.

Participants

For the present study, seventeen music students volunteered to participate in the 'Music Performance Anxiety Reduction Group' for juniors, seniors, and graduate music majors at the University Counseling Center at a university in Southern California. The afternoon group of ten students (six males and four females) were the treatment group. Four students preferring a morning group and three students wanting an afternoon group agreed to wait six weeks to begin treatment. These seven students (three males and four females) comprised the delayed-treatment control group. The instrumental categories represented included piano, strings, percussion, woodwind and voice.

Therapist

The author served as therapist for the treatment group. She is a Psychologist, non-musician, experienced in cognitive-behavioral interventions and group procedures.

Procedure

Prior to being accepted for the study, each participant was interviewed briefly by this researcher and filled out the Counseling Center's data sheet.

The nature of the research study was explained and consent to participate was obtained. Each student reported excessive feelings of anxiety when performing in public or in evaluative situations such as auditions and juries.

A review of the data sheet indicated that none of the students was on medications. Because of the relaxation component of the treatment which can alter the need for certain medications, students with medical problems being treated by drugs (such as insulin, hypotensive medications, and thyroid supplements) or severe emotional problems necessitating psychotropic medications would have been eliminated from the study.

Each participant completed the following questionnaires prior to the intervention or wait-list period: the Performance Anxiety Inventory (Nagel, Himle, & Papsdorf, 1982), a measure of anxiety during music recitals; Test Anxiety Inventory (Spielberger, 1980) and the State-Trait Inventory (Spielberger, Gorsuch, & Lushene, 1970). In addition, nine of the treatment group gave permission for their primary performance teacher to give an assessment of their anxiety level when performing. For this purpose a nine-point Likert-type rating scale (PROF) was used ranging from 'not at all anxious' to 'extremely anxious'. The rating of a 3, 'somewhat anxious (appropriately)', was considered optimum. Teachers' were asked which situation was being rated: class performance, recitals, or juries. An effort was made at post-testing to match the rating with the same situation measured in pre-testing.

After completion of the questionnaires, the treatment group met for six two-hour sessions on a weekly basis with the author as therapist. A brief description of each session follows:

Session 1. After introductions and group guidelines emphasizing confidentiality, attendance, and commitment, a rationale for treatment procedures was given. The rationale included three components: (1) the idea that performance anxiety is a learned reaction and set of behaviors that can be reduced for most people with effort and practice; (2) a description of the two-factor theory (Schachter & Singer, 1962) that emotions are comprised of a physiological state of arousal and cognitive labelling, and; (3) the goal of reducing anxiety is accomplished by developing strategies for coping with physical arousal and cognitive modification, consisting of increasing awareness of negative self-statements and replacement with coping statements.

A history of each member's music anxiety was explored with emphasis on negative and positive self-statements. A homework assignment to monitor self-statements was given.

Session 2. After a review of homework, Ellis' (1962) A-B-C theory of emotions was presented, emphasizing irrational ideas that seem particularly relevant to performance anxiety: the need for social approval, the need to be completely competent, and the tendency to view failure as catastrophic. A description of stages in coping with anxiety based on Meichenbaum's stress inoculation training (1977) was described, followed by relaxation training emphasizing deep breathing. Students were taught to rate their discomfort level from 0 (completely relaxed) to 100 (panic) preceding and following relaxation. Homework assignments were to read a booklet (Kranzler 1974) based on Rational-Emotive Therapy and to continue monitoring negative statements.

Session 3. A modified progressive relaxation training (Peper & Williams, 1981) was conducted followed by review of homework and further exploration of Ellis' ideas that particularly pertained to each student. The concept of coping statements based on stress inoculation training was introduced, with examples related to each of four stages: Preparing to perform (e.g. "I can handle this", "It's only one hour"); just before (e.g. "Remember to breathe," "Stay calm"); while performing (e.g. "Feel the part," "Stay musical."); and; after the performance (e.g. "I was a little calmer this time," "It was okay"). Included also was the concept of task relevant and task-irrelevant statements.

Each student was asked to sing/play for a two-minute period (approximately three students in this session). Negative statements for the four stages were monitored, the goal being to increase awareness of sub-vocal speech. Homework assignment consisted of monitoring negative statements and substituting coping self-statements.

Session 4. Students were asked to describe successes experienced in performance since beginning the program of training. After review of homework, the remainder of students were asked to perform briefly as in Session 3. A short form of relaxation using a pleasant scene image was conducted. While in a relaxed state, students were guided in a mastery imagery in which they were helped to imagine themselves having a successful performance. Homework consisted of continued practice in using coping statements.

Session 5. After review of homework, in a relaxed state, students were guided in a coping imagery of the day of a recital. They were helped to apply coping strategies in imagery when anxiety was experienced, such as deep breathing and coping self-instruction.

Half of the group on an individual basis played or sang a short piece. Prior to giving the 'performance' each was asked what they were thinking and feeling and helped to replace negative self-statements by stating aloud a 'before' coping statement. During the 'performance' the leader stopped and asked each student to replace any negative self-talk with a 'during' coping statement. Immediately after the 'performance', the student replaced any negative self-statements with 'after' coping statements. The procedure was repeated using covert (sub-vocal) statements. The remainder of the group functioned as an 'audience' and after each 'performance' gave feedback regarding their perception of anxiety of the performer. Homework consisted of practicing imagery using coping strategies.

Session 6. Performance procedures were continued as in Session 5 with remainder of students. During closure several points were emphasized: the need to continue to practice, not to avoid performance opportunities, and review skills for purposes of relapse prevention.

After the completion of the six-week treatment program, both the treatment group and the wait-list control group completed a series of questionnaires identical to those given in the pre-treatment or pre-control assessment. Each student was also asked to complete an evaluation of the program that included Likert-type scales assessing the helpfulness of the group, and open-ended questions soliciting feedback pertaining to 'the most helpful part of the group experience' and recommendations for future groups.

At the end of the semester, two weeks later, teachers' of students receiving treatment who gave permission were asked for a follow-up assessment using the same instrument as the one used prior to treatment.

A follow-up assessment of the four self-report measures was obtained in three months.

RESULTS

One-way between-group analyses of variance (ANOVAS) yielded no significant differences between groups for all variables in the initial assessment. The mean scores for all variables are presented in Table 1. One-tailed tests were used on all measures as the direction of outcome was predictable.

TABLE 1
Scores for All Measures for Treatment Group and Wait-List Control Group

Measure	Treatment			N=10	Wait-List			N=7
	Mean	S.D.	t		Mean	S.D.	t	
PAI	50.70	6.20	4.45****		51.75	10.06	.25	
Pre	50.70	6.20	4.45****		51.75	10.06	.25	
Post	39.80	6.09			51.00	7.40		
Follow-up								
A-STATE								
Pre	41.70	10.40	1.94**		41.57	12.87	.04	
Post	37.20	8.60			41.43	12.34		
Follow-up								
A-TRAIT								
Pre	41.50	9.40	-.18		42.71	9.81	-.74	
Post	41.80	6.80			44.00	7.10		
Follow-up								
TAI								
Pre	38.00	15.00	1.55*		34.29	12.72	-.87	
Post	32.90	6.00			36.14	15.07		
Follow-up								
PROF (N=8)								
Pre	5.75	1.58	3.19***					
Post	3.75	1.03						

****p < .001

***p < .01

**p < .05

*p < .10

Significant differences between pre- and post measurements were observed for the treatment group on the PAI ($p < .001$) and the STAI—A-State ($p < .05$). On the TAI there was a trend toward lowered anxiety at posttesting ($p < .10$). The waiting-list control group showed no significant pre-post change on any variable.

Teachers, pre- and post ratings of students receiving treatment indicated significant improvement ($p < .01$). Of the eight students rated at post-testing, five were 'somewhat anxious (appropriately)' when performing. The remaining three were moderately anxious. All except one student improved in the assessment of teachers', i.e. 88% were less anxious at post-testing.

Teachers' comments included: 'marked improvement'; 'has made obvious improvement and seems more self-confident'; 'has clearly made strides in the right direction'.

On the evaluation instrument students' global assessment of helpfulness of the group on a range from 5 (very helpful) to 0 (not at all helpful) was 3.7. Some comments about 'the most helpful part of the group experience' were: 'realizing that each performance was not the end of the world and that being nervous is not a bad thing'; 'relaxation techniques—learning relevant thinking'; 'realizing the basis for my fears and anxieties and learning strategies for dealing with them'; 'sharing with others; relaxing; awareness of self-statements'; 'group feedback on performances'; 'the ability to analyze the problem as it takes place'; 'singing in front of the group and sharing my feelings before, during, and after.'

TABLE 2
Treatment Group Three Month Follow-up

Measure (N=8)	Mean	S.D.	t
PAI			
Pre	49.13	5.30	3.68*
Follow-up	40.25	9.61	
A-STATE			
Pre	42.38	11.50	.52
Follow-up	39.63	12.84	
A-TRAIT			
Pre	43.00	10.07	.82
Follow-up	40.00	7.52	
TAI			
Pre	39.75	15.67	1.57
Follow-up	31.63	5.50	
PROF			
Pre	5.75	1.58	3.33*
Follow-up	3.50	1.85	

*p.<.01

Results of a three-month follow-up assessment are shown in Table 2. Significant differences between pre-treatment and follow-up measurements were maintained for the treatment group on the PAI ($p = <.01$), but not on the STAI. Teachers' ratings of the eight students assessed at three-month follow-up continued to indicate reduction in anxiety ($p = <.01$).

DISCUSSION

The six-weeks' group treatment for musical performance anxiety reduction resulted in reduction in anxiety as evaluated by the Performance Anxiety Inventory. Subjects also had significant reductions in state anxiety which may reflect their increased comfort level within the group situation. Trait anxiety was not significantly affected by the six weeks group treatment as measured by the State-Trait Anxiety Inventory. It would seem that this period of time may not have been long enough to affect changes in anxiety generally.

Teachers' global assessments of students' anxiety level when performing were also indicative of improvement. It appears that the brief group treatment of six sessions had effects that were noticeable not only to the performers, but to an outside critical observer who was familiar with the performers' anxiety levels. It may be, however, that because teachers were aware of students' participation in an anxiety reduction program, a positive outcome was expected, thus affecting results.

There was a tendency for reduction in performance anxiety to generalize to attitude in test-taking situations. Although differences were not of statistical significance, there was a trend in the direction of reduced anxiety as measured by the Test Anxiety Inventory. Since both musical performance and test-taking are evaluative situations, they have common features that would be addressed by cognitive and behavioral strategies.

Three-month follow-up measures indicated that students continued to report less anxiety as measured by the Performance Anxiety Inventory. Further, teachers' ratings of students' anxiety level during performances also indicated that gains were maintained.

Results of this study support earlier findings indicating that brief group therapy for musicians using cognitive-behavioral strategies can be helpful in reducing debilitating effects of anxiety.

Further research is needed to determine which components of the treatment program accounted for the gains made by students, or whether the combined cognitive-behavioral strategies were necessary for reduction of musical performance anxiety.

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What Happened to Schumann's Hand

Because it occurred more than 150 years ago, and medical diagnosis then wasn't what it is today, I'm afraid we'll never know with certainty what happened to Schumann's hand. But there follow the facts as I see them. (For a much more detailed discussion of this problem, please see my recent biography, **Schumann: Music and Madness**, Victor Gollancz Ltd., London, 1985).

1. Genetic factors: Schumann's father, in his early twenties, developed an illness that persisted and recurred. He became a semi-invalid and depended on his wife and children to help run the family business (publishing). Among the many diagnoses we find 'gout'. Possibly Robert Schumann inherited some kind of predisposition toward weakness and disability. While Schumann was an adolescent, his older sister also developed a severe physical disorder, and she committed suicide when she was fifteen.

2. Performance anxiety and alcohol abuse: In childhood Schumann began complaining of anxiety that interfered with his school performance, while speaking, and when playing the piano in public. Later he used alcohol rather liberally to control these symptoms, especially in Heidelberg, when, at 19-20, he first noted the hand problem. At that point he thought he might want to become a virtuoso. But alcohol interfered with his competency, as performer, and on several occasions he could not, or would not, show up for scheduled concerts. Alcohol abuse also took its toll in hangovers, episodes of delirium, and other sequelae during the years that his hand problems developed.

3. Unsupervised, probably faulty, practice habits: Except for his lessons with Wieck, Schumann had little in the way of systematic instruction at the keyboard. Left to his own devices, he would practise erratically, sometimes working mercilessly without pausing for many hours, while at other times he stopped practising for days on end. Part of this undoubtedly was related to the cyclic mood disorder which several times led to Schumann's psychotic and suicidal behavior.

4. Infectious illnesses: Schumann probably had bouts of malaria, and perhaps also cholera. Tuberculosis, which killed off several members of his family (including a brother), cannot be ruled out. Syphilis has often been suspected, but there is no proof that he ever had this disease. Certainly he was not receiving anti-syphilitic therapy at the age of 19-20, which is when his hand problem got started.

5. A tendency to dramatize, if not exaggerate his symptoms: Schumann often, and probably correctly, called himself a 'hypochondriac'. The first report of his hand problem (at age 20, in a letter to Dr. Carus) although undoubtedly giving a true picture of the symptoms, sounds rather histrionic.

"Wenn ich einmal den vierten Finger überschlagen sollte, verdrehte (sich) mein ganzer Körper convulsivisch, und nach sechs Minuten Fingerübungsspiel fühlte ich die unendlichsten Schmerzen in Arm, kurz (ich) war wie zerschlagen".*

6. The use of a mechanical device: Two years later, Schumann for the first time mentioned that a 'Cigarrenmechanik' (cigar-mechanism) seemed to make his hand worse. What it was and why he was using it remains a mystery to this day. Sidney Griller told me that students at the Royal Academy of Music used the term 'cigar boxes' to refer to ordinary finger-stretchers, so I assume that's what Schumann, who had learned English in Heidelberg, may have been using. (Wieck later called it a 'finger-torturer'.) Presumably Schumann was trying to overcome some sort of disability. He was by then referring exclusively to his third finger as being the 'incorrigible' one. Today we might say that it was 'dystonic'. As Schumann wrote, 'When I have to play for anyone, I'm overcome by an anxious inhibition of my fantasies that drives me to despair'.

7. Medical intervention: Whether the many different 'treatments' he received in Leipzig helped or hurt Schumann is a moot point. He was given various drugs and psychotherapy (type and amounts unknown); he undertook 'animal baths' (inserting the hand into a carcass); he was bandaged and told to stop practicing; and his muscles were stimulated electrically. It is clear from Schumann's letters and diaries that he never actually gave up playing and enjoying the piano. However, he no longer performed in public after the age of 22, except for a brief period around the age of 27, when he was planning to move to Vienna. Interestingly, at that time he again requested—and perhaps used—a mechanical device ('einen Fingerschneller'), hoping to improve his dexterity. One of his friends described Schumann's playing, after he had been treated for his 'malady', as less focused on meticulous passage work and more inclined to emphasize sound quality: "The sustaining pedal (was) always halfway down, so that the shapes flowed into one another". Another observer, hearing the composer play selections from his **Kreisleriana**, **Novelletten**, and other difficult works written in his late twenties, said "Schumann's piano playing was indescribable. He moved his fingers with an almost frightening velocity, as if ants were crawling around on the keyboard".

8. The social advantages of being a "nine-fingered pianist": Schumann regularly referred to Clara Wieck as the better pianist (which she undoubtedly was), and this enabled her, as he put it, to become his 'right hand'. Thus, his music was able to get a much better hearing than if Schumann had performed it himself. All along, he was more interested in being a creative artist, composer and writer, than a virtuoso. Furthermore, Schumann used his problem hand to avoid military service, claiming that it

*"Whenever I had to move my fourth finger, my whole body would twist convulsively, and after six minutes of finger exercises I felt the most interminable pains in my arm—in short I was as if destroyed".

would prevent him from using a gun. (A few years earlier he had threatened to shoot himself). Thus one can see that a physical disability provided certain advantages for Schumann. First it reduced his anxiety about having to play in public; second it helped him to avoid violent behavior; third it allowed him to achieve a better balance in his relationship and later marriage to an intensely ambitious pianist, Clara Wieck; finally it permitted a freeing of energies for creative work, resulting not only in the masterful compositions for which this great musical genius has become justly famous, but also in some of the most vivid and enlightened prose ever penned by a music critic. (It goes without saying that the huge amount of time Schumann spent writing and editing contributed to the problems he had with his right hand—perhaps a sort of 'writer's cramp').

Summary: In trying to explain what happened to Schumann and his right hand, I've summarized eight sets of factors that seem important in having caused and perpetuated the problems he had as a pianist. Clearly there is much that we do not know, even today, about the professional ailments of musicians. But it should be emphasized that these are serious and complicated problems. One must respect the many different interactions—physical, psychological, emotional, vocational, and social—which can result in the acquisition as well as the breakdown of behavior patterns. Just as single notes do not make melodies, single causes seldom suffice to explain diseases. It is the combination of these elements that makes them meaningful. Our task as teachers, clinicians, and scientists is to study such combinations and understand them better. **by Peter F. Ostwald, M.D.**

Prof. of Psychiatry, Co-Director "Health Program for Performing Artists"—Univ. of California, San Francisco.

Understanding and Avoiding the Physical Hazards of Making Music

If someone walked around with his left shoulder raised, his neck twisted to the left and tilted chindown, and his left arm held outstretched, palm upward, for six to eight hours a day for twenty years he would assuredly develop marked and permanent postural deformities **even if he never played the violin!** Similarly, if someone walked about for twenty years with their bent right arm in front of their chest with an 800 gram weight suspended from their right thumb you would expect that person to develop difficulties with their thumb joints, wrist, arm and neck **even if he had never heard of the clarinet!**

Our muscles are very important, and we should never unknowingly damage them. **To make music we have to use our hands. We have to hold them in unusual positions and we may also have to support the weight of our musical instruments. We do this with muscles.**

Every single musical instrument has its problems from the players' point of view. **Musical instruments were not designed for anything other than the sound that could be evoked from them.** Perhaps the time has come to redesign all our instruments along ergonomic lines, but until that occurs we will have to learn to live with our chosen instruments and to try to avoid damaging ourselves in the process of making satisfactory and even beautiful music.

Every single instrumental musician and every music student is at risk of muscular damage during the whole of his career. Certain of us are at even greater risk. If we are overdoing the practise time, or the speed of a passage, or the stretching of certain muscles, or if we are taking on a big musical workload after relaxing holidays, or are under severe stress from another side of our lives, then we are at even higher risk of the overstrain syndrome, known also as "R.S.I." (repetition strain injury), "tenosynovitis" (incorrectly) or "muscular tendinitis" or "shoulder hand syndrome".

Although we are all made up of bones, ligaments, muscles, tendons, tubes and other anatomical parts, no two human beings are identical, and there is no such thing as an "average" person. Some of us have long bones but thin muscles (suitable to be a pianist like Chopin?), others are stocky with shorter bones and thicker muscles (suitable to be violinists like Ricci?), but **we are all individual, and may be, unluckily, anatomically quite unsuitable for the instrument that we choose we play.**

Music teachers, in particular, should be aware of the general posture of their pupils, as well as the specific anatomy of each pupil. This is especially important in early years when little bodies do not reach the pedals or have to stretch for notes. It is so much better to have been taught correctly the first time than to have to change one's positions and technique in later life. While on the subject of **young musicians**, it should be emphasised that they **pass through several "growth spurts" between 7 and 17 years of age.** At these times the bones grow very rapidly, but the muscles do not strengthen in proportion to the extra load they must work to maintain a similar action at the greater distance. To illustrate this consider the workload on the muscles around the elbow that provide the motive power for a young pianist performing a "trill" when the arm, wrist, hand and finger bones lengthen a total of six inches in six months, a common occurrence in the early teens. It may take the student another 6 months of **careful and informed practise after such a growth spurt to build up the muscles to be able to play to the same capacity as before, without damaging those muscles.**

Motive power for our hand movements comes mainly from muscles about the elbows. The hand evolved with strong gripping muscles, called flexors, to grip effectively—presumably to enable one to swing from vine to vine through the trees! We have much weaker releasing muscles, called extensors, to relax that grip. **The strong flexor muscles, on the insides of the elbows, are provided with a very good blood supply directly from the large arm and forearm arteries. The weaker extensor muscles, on the outsides of the elbows, receive a poorer blood supply from tributaries of the larger arteries.** Although they are expected to work together with the more powerful muscles, the extensor muscles can only do that for limited time periods, and any additional loading can cause the actual muscle cells to suffer damage and even lead to cell death because of lack of sufficient blood supply.

In a pianist, the extensors of the wrists and fingers hold the hand in the poised position above the keys before playing. If a relaxed and balanced initial hand position is not adopted early in training, then undue stress on the extensors will be caused even before a note is sounded. Every note thereafter will also require the extensors to return the finger to the wrong poised position, causing excessive amounts of extensor muscle use, muscle tension, and almost guaranteeing later trouble. In a violinist, left hand position is

critical to the pain and damage free playing life span of the artist. The left hand of the violinist is extended at the wrist—which tightens up all the wrist and hand extensor muscles, and then each finger extensor is further extended to release the corresponding flexor to play each note. No wonder violinists cannot play at all when they are very tense.

So far I have not mentioned the muscles above and below the elbow. To play any note at all one mainly requires the finger extensors and flexor muscles which arise from the lower end of the arm bone (the humerus). Refinements and additional fine controls come from the "intrinsic" muscles of the hand itself those smaller muscles that control the widening and gripping motions, and to some extent also the positioning of the long tendons arising from the elbow muscles. It is the intrinsic muscles of the hand that take the brunt of our work and are the most prone to pain. Pain in the hands is often the first sign of trouble and should be seen as an early warning of trouble to come unless changes are made(1).

While it now may be quite obvious that all our intrinsic hand, forearm, elbow, arm, shoulder, back and neck muscles must work in concert to enable us to make music, we still have to consider two more groups of muscles if we are to avoid poor playing postures. We must look at our whole basic body posture, and get it into balanced equilibrium. A "slouch" is only comfortable for a short time, as so much additional strain is required by all the now unsupported playing muscles. There isn't space in this discussion for an analysis of what makes up good body posture, but sitting or standing up straight, with a good natural forward curve in the lumbar or lower spine, with well balanced legs, certainly equips one best for prolonged performances.

The other group of muscles that should not be forgotten are those that hold the head up. We not only have to play the instruments with our hands, but we have also to position the head to see those hands, and yet to also see the music, and perhaps also the section leader, and the conductor. The excessive neck movements to allow all these actions might just be the last straw on the road to an unbalanced playing position.

It is stated by some teachers that it is foolish to think of all those muscles that you need to use to be able to play music. These teachers suggest, quite correctly, that it is all a matter of making it all look easy; "have a relaxed style", "play within yourself", etc. This would be terrific advice if we were all started off along those principles that were the most correct for each one of us. It is quite true that the great artists do make it all look easy, as they have a really relaxed style to survive as performers, but I doubt if any of them came by it easily without a good deal of self knowledge, and by protecting their precious muscles.

I have had the experience of examining hundreds of performing instrumental musicians over the years, and relating their problems to my anatomical and musical knowledge. It is sad to observe how many musicians have caused their own injuries by playing in positions that were unsuitable for them. In a recent publication in 1985 (2) I described the findings from examining 110 musicians, where patterns of injuries were seen to be associated with specific instruments. These patterns were confirmed by a recent paper from Dr. Hunter Fry of Melbourne.

Pianists suffered mainly hand and forearm pains and tenderness, leading to loss of control and power, loss of speed, and a rapid onset of fatigue.

Violinists and **violists** very frequently develop painful hand, arms and necks and indeed seem to suffer more as a group than do any other artists. While violinists complain mostly about their sore hands and arms, a full examination reveals their typical neck disabilities, back signs and their permanently deformed posture. There is a severe physical price to pay for the privilege of playing the violin for over 20 years. If you do you must overdevelop one shoulder and its neck support muscles, overdevelop the left forearm's extensor mechanism, and set up a painful spot from repeated static contraction in the support muscles of the left shoulder (rhomboid major). I call this tender area "the violinists' Achilles spot".

Clarinetists frequently present with "clarinetist's thumb". This is a painful and stiff right thumb that had to occur from the prolonged stress of both supporting the weight of the clarinet and acting as a counter pressor to the pressure of the fingers while playing. The unsupported thumb develops basal joint problems but more importantly develops strains in its supporting muscles and tendons. Of course all these savage symptoms could be avoided by taking the weight of the clarinet off the thumb and loading it onto an ingenious device such as a floor stand, neck sling, chest post, knee brace or combination of these.

Other **wind** and **string** instrumentalists and even **tympanists**, **guitarists** and **harpists** suffer from specific muscular induced aches and pains. Often these artists can obtain relief by slight alterations of their playing positions to allow a relaxation in an offending muscular group.

It is equally disturbing to discover so many children and young musicians with problems so severe that their early careers are in jeopardy. Some children are asked to perform tasks, or are demanding of themselves to perform tasks too strenuous for their as yet undeveloped muscles and musculotendinous complexes. Sometimes the entrance examinations to Conservatoriums of Music, which occasion increased times and intensities of practice, occur at a time when the child is having a growth spurt, putting excessive and unbalancing strain upon immature muscles, and causing rapid onset of "R.S.I." type symptoms. Sometimes the same increased strain is caused during schooling by excessive workloads before performances, exams, demonstrations or competitions. Enormous responsibilities lie in the hands of the music teachers of children. They must be acutely aware of the possible physical weaknesses of each student, and be sensitive to the child's reluctance to report any pains or problems to such an authoritarian figure. Few teachers are thought of as "easily approachable" by their own students.

I believe that the problems of instrumental musicians are coming to greater awareness for a number of reasons. Standards of music training are higher today than ever before, and competition is harder in both numbers and performance levels. Because of the universal availability of truly great performances on record, disc, tape or video, artists are only too well aware of their own limitations and aspirations and where they have to improve. In addition, the work load on performers, particularly orchestral and group players, has increased enormously over the past ten years, leaving virtually no time at all for real relaxation.

Because we are all at risk, serious consideration must be given to every step along the road to a musician's career. A young musician with talent may be better advised to **avoid** that early competition and spend the time growing

up normally if he is to have a prolonged career in music. More serious consideration of anatomical factors should be made before choosing one's major musical instrument. Great flexibility in choosing a compatible teacher could be advantageous, and the lack of availability of informed and sympathetic medically trained advisors is regrettable.

There are a number of general rules which can help musicians continue on in their careers. They are based on both knowledge and common sense.

The Owen Rules for Musicians:

1. Warm up your muscles before approaching the instrument. A sprinter does not "warm up" by sprinting and a musician should not warm up by playing scales or pieces. The object of warming up is to establish a good flow of blood into the muscles you will use to play the instrument. The whole body should be involved and the exercises should work out the shoulders, arms, forearms, the back and the legs. Warm up exercises should also be repeated several times during a prolonged practice session to restore blood flow to cramped overworked muscle groups.

2. Assume the correct anatomical posture. Learn to avoid the "slump". Sit up or stand up well so you can breath easily, and have a relaxed framework from which to play.

3. Perform within your capacity in as **relaxed** a manner as possible. You don't get any marks for burning yourself out early in your career. If you re-examine your playing position and you are not completely relaxed **before** you commence playing, then something is definitely wrong and requires readjustment immediately. If you are tense before you even start to play then you shouldn't start. Settle down and relax, using any relaxation method that you find successful.

4. Take frequent non-performing breaks. It is pure insanity to make a habit of voluntarily doing any one task for hours upon hours on end without a break. For some people arbitrary timing of practice sessions divided into 25 minute sections with a mandatory 5 minutes rest gap seem to help considerably. Others can work on a single passage for longer periods without obvious problems emerging. In general it is wise to **segmentalise** your practice sessions to aid technique and concentration and avoid R.S.I. type symptoms.

5. Practice for only as long as you need to. In my survey of 110 instrumental musicians and a study of a full Symphony Orchestra. I found that top artists play their instrument an average of about six and a half hours a day. Students often claim to play for ten or more hours a day. Some really great artists practise a little less than the average as they grow older, but their practice is more definitive and segmentalised. A few hours a day sensible practice can be of more lasting value than unplanned practice for twice as long. Remember you are not practising to become a rocket, but for a career in music.

6. Stop and seek informed help **immediately** any pain occurs. The key words here are "stop" and "immediately". You do not achieve anything good by playing on through a pain barrier. **You** are the only one who appreciates how **you** feel, so you have to inform someone if you are being inconvenienced, otherwise they will not know. Musicians are generally genuine stoics who hate to admit they are in pain, but this attitude is self-defeating. Try to make sure the person you seek help from has enough

knowledge and experience to be able to positively advise you.

A general adherence to these simple rules could well prolong a playing career by avoiding the onset of muscular strain. Only by an increased basic understanding of ourselves and our playing positions, and of the overstrain dangers we can cause ourselves, will we avoid the physical hazards of making music.

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The Owen Rules for Musicians

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4. Take frequent non-performing breaks.
5. Practise for only as long as you need to.
6. Stop and seek informed help immediately any pain occurs.

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Meditation, Creativity and Performance

In our world today, many people are using various meditation practices in their daily lives. Meditation is as old as human existence, though it was developed in a scientific manner some 5,000 years ago in India. The many benefits of this ancient practice include increased concentration and awareness, relaxation, and the ability to explore one's inner state or spirit of creativity. Meditation is a tool that can help us as artists in our professional as well as our personal lives.

In reaching a high level of performance or instruction, artists serve as channels through which inner creativity and insight establish a rapport between composer and listener. For example, is it not true that the best, most creative performing or teaching just happens? The music and ideas or words simply flow. This flow comes from an intuitive knowing, an awareness that pours forth and is a union of inspiration combined with intense study and discipline.

Inspiration is often simple in its projection. This simplicity gives a sense of unity or oneness. A good example of this is observed in the genius of Mozart. "In his mature years, Mozart's mechanical excellence was so perfected that his genius could speak as direct insight. He would receive a commission for a new symphony and the work was quite likely to fall into his head as a *gestalt*, arriving full-blown in his brain, 20 minutes of music in an instant of time".

Jerome Bruner, head of Harvard's Center for Cognitive Studies, talks about the stages of intuitive revelation or insight. First, one begins with a passionate quest or pursuit. This is followed by the development of mechanical excellence. The third step involves exploring all the material related to this quest, giving rise to the "gestation" period. After the artist has done the groundwork of these first three stages, there is a time of letting go. This is when insight arrives. The fourth step involves the translation of this insight back into the artists performing medium or the teacher's communication skill.²

The practice of meditation can facilitate all of this by opening up the channel and allowing inspiration or insight to occur. Through meditation we can establish a connection with the source of all our experience and creative power. The hazards of an artist's life, such as creative blocks, physical tension, stage fright, burn-out, etc. can be eradicated through meditation, allowing one to live in a constant state of inspiration.

As a teacher, performer and meditator of many years, I have encountered some truths along the way. One is that we learn by doing. It is experience that matters. Eloquent words or insightful explanations can never equal the actual experience of producing the desired result.

Another truth is the realization that as performers and teachers, we do not pour our knowledge into empty vessels, rather, our efforts are directed towards an unconscious potential of understanding in the student or audience. Indeed, it is our challenge to trigger, inspire, bring out what is already there. We are born as complete beings, with the most incredible structure, physically and mentally. Environment, parents, friends, teachers shape us and encourage or discourage what is within to come out. The consummate artist

is one who avoids imitations and allows his own spontaneous inner joy to pour out in whatever form it takes.³

In light of these truths, the best thing we can do is work on ourselves, because the best teaching, the best performing is example. One communicates more by who one is than by what one says.

Working on oneself involves not only the obvious exterior demands—such as practising, reading, writing, attending concerts and lectures, teaching, organizing and communicating—but also includes the sometimes not so obvious interior demands. It is important to observe the cycle which occurs within all of us between this inner and outer world. The tools of our profession: creativity, inspiration, insight, all come from this inner world of awareness and are projected outward, feeding our exterior world. External stimuli, whether from music itself, from teachers, colleagues, books, etc., serve to stimulate and trigger our inner world of awareness. The two worlds need a balance in order to function at their highest potential in this unending cycle. Too often in our society, the pressure to attend to our outer world is much greater, and attending to one's inner self is looked upon as almost selfish, suspect, or indulgent. Not having the time to take care of business on the inside can sabotage our striving to meet the demands and pressures on the outside creating unnecessary tensions both mentally and physically. Meditation is a means for nurturing our inner world, for allowing the creativity and intuitive understanding to happen, and for giving one a sense of calm and relaxation.

Tolstoy observed that, "Art is a human activity, whose purpose is the transmission of the highest and best **feelings** to which men have attained".⁴ Feelings is the key word here. Not intellect, but feeling. And feelings come from this inner world; i.e., from the heart. The heart is often defined as the core of our emotions, our innermost thoughts and feelings, the centre of our inner universe. All the great sages throughout history say the mind has its seat in the heart. And all the great artists throughout time have fed on this inner world of the heart, the spirit, which gives feeling, emotion, and an awareness of this inner beauty. Meditation is a means of 'recapturing this sense of inner beauty so that we can weave it into the fabric of our lives and enjoy the art of our own creation'.⁵

As artists, we are often under much public and peer scrutiny, thus having our egos challenged and tested. The ego can be our greatest ally or our worst enemy. Our egos give us the desire, the passion to begin our journey for musical excellence and understanding. Ego also serves as a catalyst, fuel to get the engine started, so to speak. But ego can also limit, disturb, cause barriers and attachments and inhibit an otherwise natural flow. Ego can cause one to have a limited view of oneself. But when one can give up this limited view with all its caution about good and bad, tasteless and tasteful, and become free, bold, and able to perform without attachment, then one can give a performance which is 'truly inspired and not the tortured product on one's own intellect and ego'.⁶ Once again, it is through the practice of meditation that we can let go of these limiting definitions and attachments of our self-image and how we think we should or should not perform, eliminating anxiety and tension and opening ourselves up to a much greater source of creativity and inspiration.

To arrive at this source, the Japanese conducted a school of Zen which taught 'satori' through the practice of complete mastery of skills such as archery, flower arranging, and calligraphy. The student's mastery was achieved through endless practice, so that he could let go of the technique and then, an only then, be totally in tune with the skill, thus allowing himself to be a channel for that flow of inspiration. A verbal translation of such an act is 'The bow breathed the student, as in the case of archery',⁷ or, according to the writer, "the piano and I were one—the piano played me—I was no longer doing, only observing". In meditation terms this is called being in the 'witness state'—simply being aware, pronouncing no judgments of good or bad, thereby allowing the body to relax more and thus be used more efficiently because unnecessary tension caused by judgments and self-consciousness have been greatly reduced.

During the piano pedagogy classes at Georgia State University we have shared brief meditation sessions with the result that some students have chosen to include this practice in their daily life. Common reactions from the class have been feelings of increased awareness, calmness, relaxation, joy and rejuvenation. With those students meditating on a regular basis, there is more reliance on the inner guidance and less dependence on the outer guidance or teacher. This has created an increased sense of self-acceptance and self-love, and has encouraged a more relaxed and self-motivated atmosphere for the student.

The art of music, like the art of living, involves communication. In order to communicate one must create a relaxed atmosphere within and without; one must experience thoroughly what is being communicated. This experience on the part of the performer triggers the understanding, the same intuitive experience already lying latent within the student or listener. Quoting Swami Samatananda, former director of the Victorian Operas Company and leading actor of the Melbourne Theater Company, "When the ideal communication takes place, we experience within us the same . . . intuitive flash experienced by the artist in the moment of creation".⁸

The following quote describes meditation very simply and beautifully. It is taken from a book called **Meditate** by Swami Muktananda, a renowned meditation master who travelled extensively in the 1970s teaching meditation in the West. "Meditation is universal. It does not belong to the East or to the West, but is everyone's property, just as sleep is everyone's property; it belongs to humanity. Meditation is not something difficult or strange. All of us in our daily lives are already familiar with it. Without meditation, a doctor could not diagnose a disease, nor could a lawyer prepare a brief, nor a student pass an examination. All our arts and skills . . . are perfected through the power of concentration, which is nothing but meditation. However, these are external forms of meditation".⁹ When we turn our attention within, we are meditating on the source of that creative energy. "Meditation is not an activity one performs, but a state one slips into, much as one slips into sleep. It is not a matter of technique, but of knowledge and understanding".¹⁰

In conclusion we might ask ourselves as teachers and performers, do we not bring to the audience who we are? And in bringing who we are we must work on ourselves, open ourselves, and celebrate our intuition, our creativity —out of which springs our true nature. To involve people in a concert, the performer must be aware and experience the music during the moment of its

unfoldment and then communicate this experience to the audience. In this awareness lies the open channel, the link between composer (divine inspiration) and listener (total receptivity).

According to Tolstoy, "the ultimate goal of the creative minds of all disciplines, including the sciences as well as the arts, should be to reveal and share the experience of beauty that is the true nature of reality".¹¹ We can lead our students and our audiences to their highest potential and show them the beauty and art of this inner world by feeding and nurturing our own inner world through meditation.

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Footnotes

- 1 Pearce, Joseph Chilton, "Insight and Revelation". **Siddha Path**, p. 20.
- 2 Ibid, p. 21.
- 3 Samatananda, **Siddha Path**, p. 4.
- 4 Tolstoy, "What is Art", **Siddha Path**, p. 23.
- 5 Shantananda, "Beauty in Spiritual Life", **Siddha Path**, p. 22.
- 6 Durgananda, **Siddha Path**, p. 34.
- 7 Ibid, p. 23.
- 8 Samatananda, **Siddha Path**, p. 5.
- 9 Muktananda, **Meditate**, p. 19.
- 10 Ibid, p. 5.
- 11 Samatananda, **Siddha Path**, p. 6.

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Special thanks to Joseph Chilton Pearce, Swami Ishwarananda and John Schneider for their ideas and encouragement.

Train the Mind to Calm Itself *

General Practitioners know about medication in the relief of anxiety. Medical school lectures are followed by bombardment by drug companies with literature and free samples. There are so many drugs on the market now that you could be forgiven for wondering whether any work well. Intensifying this anxiety is concern about side-effects.

The depressing truth is that if we take the edge off the razor blade of life down which we slide, as American humourist Tom Lehrer put it, we also take the edge off many of life's pleasures and experiences.

Many patients tell of a zombie-like, switched-off state they experience on tranquillizers.

Malcolm Lader, professor of psychopharmacology in the Institute of Psychiatry, has reported on habituation which comes with long-term tranquilizer use, their addictive properties and the florid withdrawal symptoms which occasionally occur with sudden cessation. He also created alarm and despondency among doctors and patients when he reported in the US that CAT scanning shows that long-term tranquilizer use caused shrinkage of the brain similar to that seen in alcoholics, apparently due to 'neuronal drop-out'.

What do you know about meditation? Probably not a lot. It certainly isn't taught in many medical schools and is only gradually creeping in to certain *avant-garde* practitioner training schemes.

Meditation can be very effective treatment for anxiety, either in its modernised western formats or in some of its more exotic Eastern forms.

Meditation is simply the direction of flow of attention, according to Patanjali, the 8th century Indian sage who systematised Yoga.

Most of the time, our attention is directed outwardly. This puts you in touch with the different forms of stress in your life and, in susceptible people, creates a vicious circle of anxiety leading to adrenaline release, anxiety symptoms of which you become aware, which then produce more anxiety.

When attention is directed inwardly, which is what people usually understand by meditation, you become uncoupled from the stresses in your life and the body's self-healing, restorative relaxation responses take over. This produces a switch from sympathetic dominance with over-activity of the fight/flight system, to para-sympathetic dominance with increased activity of the rest/digest/relaxation/restorative system of the body. There is an overall move from a state of internal war to one of peace.

Such voluntary control over the body's involuntary nervous system is remarkably easy to achieve by a whole range of techniques. These originated with Yoga methods in India, moved to China as Buddhist meditation, and then to Japan as Zen meditation.

Autogenic training is a westernised rediscovery of the basic principles of eastern meditation.

Attention is directed inwards by focusing the mind on verbal formulae relating to different parts of the body.

The nucleus of autogenic training comprises the six standard exercises developed 50 years ago in Germany by Dr. Johannes Schultz. These involve focusing the mind on sensations of heaviness, and then warmth, in the arms

and legs, a calm regular heartbeat, easy natural breathing, abdominal warmth and cooling of the forehead.

Under medical supervision, these purely mental exercises are progressively introduced at individual or small group training sessions held once a week over an eight-week period. The patients then practise them in a comfortable stable sitting position, or lying down. And, like traditional medication, it is 'taken' three times a day after meals for about ten minutes.

After four to five weeks of this training it is usually possible to wean the patient off tranquilizers, beta blockers or sleeping pills. Mild anxiety states respond particularly well to the therapy.

More deep-rooted anxieties and phobias may need experienced psychotherapeutic intervention at a deeper level, by the techniques of *autogenic abreaction* and *autogenic verbalization*, as shown in figure 1.

You don't have to be ill to do autogenic training. The practitioner, who has to train in it before becoming a teacher, will find many fringe benefits for himself or herself such as calmer driving, the need for less sleep, and even the ability to get off to sleep again when patients go bump in the night.

So-called *intentional formulae* can improve performance and aid will-power in many areas of life. This was shown by the British International Rifle Squad which achieved higher scores after learning the technique, mainly because anxiety associated with intense competition was reduced.

Anxiety-related displacement symptoms such as smoking, drinking and over-eating tend to fade away spontaneously with this training.

Organ-specific formulae can be used to help in a range of disorders which have a major psychosomatic component including post-infarction, cardiac neurosis, hypertension, and pruritis in all areas.

Siddha meditation is the one eastern technique of which I have personal experience, and can warmly recommend as being a non-weird, non-cult, highly ethical form of meditation which is proving popular in the United States, Australia, and throughout Europe, including the many centres scattered round Britain.

The technique can be learned in an evening. It basically involves focusing the attention on a simple word formula, or mantra, linked with the breathing. This makes use of the age-old observation that when the mind is disturbed, the breathing is disturbed. Thus controlling the breathing can help to control the mind and allay anxiety.

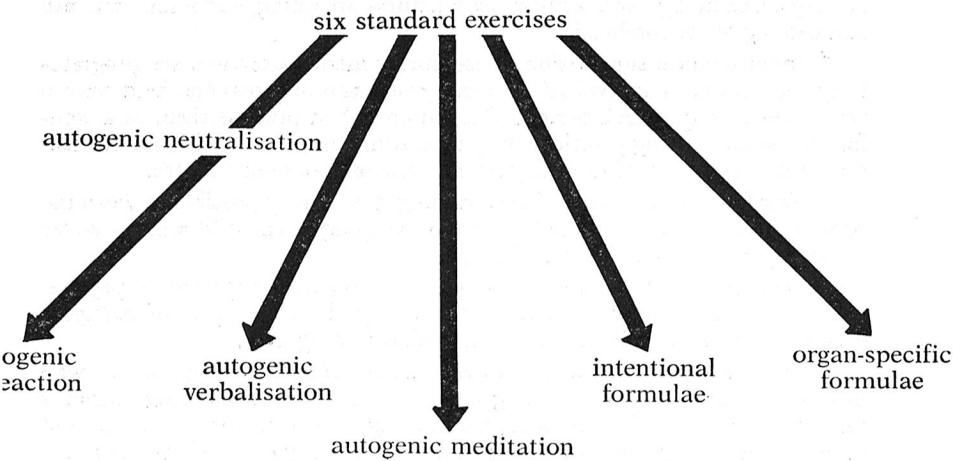
A single 20- or 30-minute session in the morning sitting in a chair, or, cross-legged on the floor, can produce a powerful anxiolytic effect lasting the entire day.

This is an example of a spontaneous, simple form of meditation, which is easy to keep going. Also, it costs nothing except a small amount of self-discipline.

As well as the many mental benefits, the body benefits as autonomic balance is achieved, with relief of the somatic symptoms of anxiety, and reduction of cardiovascular risk factors.

Another interesting side-effect of both autogenic training and siddha meditation is the balancing of the levels of activity of the two sides of the brain.

This improved bridging and cross-talk via the corpus callosum results from increased activity on the more imaginative, creative, intuitive right side



of the brain compared with the normally over-active, logical, analytical, sequential-thinking left side of the brain.

These techniques are often associated with an improved emotional balance as people gain better access to the feelings pent up on the right side. They can be more effective in alleviating anxiety than expensive and time-consuming psychoanalysis, which deals predominantly with the logic of the situation as seen by the left brain.

Dreaming is done mainly by the right side of the brain and the memories later shift across to the left side for interpretation. Meditation often results in improved recall and interpretation of dreams, not only clearing the road blocks on Freud's 'royal road to the unconscious', but also changing the images of dreams from being black and white to glorious Technicolour.

When people can use meditation rather than medication they learn to help themselves.

They are much more independent and self-reliant, without feeling that they have to run to the doctor for tablets every time they are in an anxiety-provoking situation.

Anxiety is a contagious condition and doctors who use meditation for themselves and their patients are much less likely to end up on medication.

Dr. Malcolm Carruthers

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First published in 'General Practitioner' 16th July, 1982.

Details about Autogenic Training can be obtained from the Positive Health Centre, 101 Harley Street, London W1 1DF. 01 935 1881.

Details about Siddha meditation can be obtained from Siddha Meditation Centres, SYDUK, Campenton, Riverside, Temple Gardens, Staines, Middlesex TW18 3NS.

The Practice of Complementary Medicine and Anxiety Levels in a Population of Musicians

The aims of this study were:

(i) to obtain demographic information about the extent of deliberate work with complementary medical techniques, such as Alexander technique and meditation, and the levels of anxiety in a sample of professional musicians;

(ii) to test the use of the performance anxiety inventory, a questionnaire developed from Spielberger's Test Anxiety Inventory (1) specifically for performing musicians and a potentially useful research instrument;

(iii) to assess the relationship between performance anxiety, state and trait anxiety, personality traits (extraversion and neuroticism) and demographic factors in the sample under investigation.

INTRODUCTION

The proliferation in the availability and practice of complementary medical techniques in recent years has not been accompanied by an associated increase in scientific research into their efficacy. There is remarkably little research into their use amongst musicians, even in the Alexander technique, which is traditionally popular. There have been a number of studies on ways of relieving performance anxiety (for reviews see 2 and 3) but questionnaires specifically measuring performance anxiety need further development.

Performance anxiety is a complex phenomenon. Lehrer (4), in a factor analytic study, found five independent factors: anxiety and fear of fear, distraction and memory problems, concern about performing abilities, fear of social disapproval, and deliberate cultivation and use of techniques for coping with anxiety during performance. He has also distinguished somatic, experiential and behavioural components (5). Any debilitating level of performance anxiety, which will be manifested according to individual physiological reactivity and psychological lability, is the result of an interaction between trait anxiety or personality disposition and situational determinants. One of the aims of this study was to determine whether performance anxiety is correlated more with general anxiety or situationally-determined anxiety.

METHODS

Subjects

The participants in this study were 60 players contracted to perform for the London Sinfonietta for one particular performance, some of whom were permanent players of the ensemble and some freelance players by occupation.

Procedure

All subjects were sent a questionnaire battery through the post, consisting of a standard letter outlining the research project and a copy of four questionnaires: the Eysenck Personality Inventory (EPI), Spielberger's State-Trait Inventory (STAI), the Performance Anxiety Inventory (PAI) and a general questionnaire about age, number of years experience of performing as a professional musician, instrument played, frequency of drug use and use of complementary medical techniques (such as yoga, meditation, homeopathy, Alexander technique) and whether the subject had had a

'mystical experience', together with a stamped addressed envelope for their return. Subjects were instructed to fill in the questionnaires in the following order: general questionnaire, STAI, EPI, PAI.

MATERIALS

The EPI is a well-known personality inventory, which measures two independent personality dimensions, extraversion and neuroticism. It consists of 57 questions answered by a simple 'yes' or 'no' response. Measures of anxiety would be expected to correlate with neuroticism scores.

The SAI was chosen out of the available anxiety measurement instruments as it consists of only 40 items and has well-documented reliability and validity and does not contain items which may be more related to anger or depression (6, 7). The inventory consists of two forms, the state anxiety inventory and the trait anxiety inventory. State anxiety is described as 'a transitory emotional state characterised by subjective, consciously perceived feelings of tension or apprehension and heightened autonomic nervous system activity'. As state anxiety may fluctuate over time the form asks subjects how they feel 'right now'.

Trait anxiety refers to 'relatively stable individual differences in anxiety proneness, that is, to differences in the tendency to respond to situations perceived as threatening with elevations in state anxiety'. As trait anxiety is supposed to be relatively stable personality disposition, the second form of the inventory asks subjects how they generally feel.

The PAI, developed by Nagel et al, (8), is a 22-item questionnaire containing 11 items which purport to assess cognitive manifestations of anxiety such as fear of social disapproval, and 11 items representing somatic manifestations such as shaking. It is based on Spielberger's test anxiety inventory, which contains both 'cognitive' and 'somatic' items, on the assumption that certain characteristics of performing may be assumed to be similar to doing a test, such as being concerned about one's abilities. Each item is rated on a scale of 1 (almost never) to 4 (almost always). The questionnaire asks subjects how they generally feel about their performances. Thus a higher correlation would be expected with trait anxiety than with state anxiety.

The general questionnaire contained 15 items. Since Lehrer (4) found inexperience was an important factor in performance anxiety, PAI scores would be expected to correlate with both age and number of years working as a musician.

RESULTS

48 out of 60 (80%) questionnaire packages were returned, of which 30 had been answered (by 22 males and 8 females, whose ages ranged from 26-59 years).

(a) Use of complementary medical techniques

Altogether 16 respondents (53%) had had some experience of a complementary medical technique. Of these by far the largest proportion is accounted for by the Alexander technique (43%) (see Table 1). 4 people reported having had mystical experiences.

Technique	No. of subjects with experience of technique	% of sample
Alexander technique	13	43
Yoga	4	13
Self-hypnosis	2	7
Other techniques	3	10
Beta-blockers	5	17
Any technique	16	53

(b) Anxiety

The mean scores on state anxiety for our sample were near the published norms (see Table 2). However, the mean scores for trait anxiety were significantly higher than Spielberger's norms: 41.95 as against 34.89 for males ($t=2.27$, $d.f.=20$, $p < 0.03$ two-tailed test) and 44.25 as against 34.79 for females ($t=3.12$, $d.f.=7$, $p < 0.02$ two-tailed test). The mean score for males and females combined (41.69) is very similar to that obtained by Steptoe (9) of 40.6. The correlation between the two types of anxiety is normally in the region of 0.70 for males and 0.75 for females. In our sample the corresponding figures are for males: $r=0.79$, ($t=5.70$, $d.f.=21$, $p < 0.001$ two-tailed test), and for females: $r=0.49$ ($t=1.36$, $d.f.=8$, not significant).

	Anxiety Scores			
	Musicians		Norms	
	Males	Females	Males	Females
State anxiety	34.04	34.25	35.72	35.20
Trait anxiety	41.95	44.25	34.89	34.79
Performance anxiety	39.00	36.29		

The mean neuroticism scores for our sample were 10.52 for males and 12.88 for females. These figures are higher than the published norm of 9.07. For females: $t=1.97$, $d.f.=8$, $p < 0.10$, two-tailed test. The mean extraversion scores for our sample were 10.05 for males and 12.00 for females. That for males is significantly lower than the published norm of 12.07 ($t=2.19$, $d.f.=21$, $p < 0.05$, two-tailed test).

Correlations between the various measures which reached statistical significance are shown in Table 3.

	Performance anxiety	State anxiety	Trait anxiety	Extraversion	Neuroticism	Age
Performance anxiety	0.544	0.617		0.610	—0.385*	
State anxiety		0.676			0.497	
Trait anxiety					0.799	
Extraversion						—0.563
Years of experience	—0.312				—0.410*	0.843

(Asterisked values are significant at $p < 0.05$; all other values are significant at $p < 0.01$).

Thus, all three types of anxiety are positively correlated with each other and all correlate with neuroticism. Performance anxiety correlates negatively with age, extraversion and years of experience.

DISCUSSION

The popularity of the Alexander technique amongst musicians is demonstrated by these results. Eliminating the Alexander technique from our data, the proportion of the sample using other complementary medical techniques is 30%. It would be interesting to compare this figure with other occupational groups. The Alexander technique is a useful form of postural and attitudinal training, taught in increasingly large numbers of natural health centres around the country as well as in musical teaching establishments. Posture training is one way of dealing with tension (8,10,11) and should therefore affect the incidence of performance anxiety. The efficacy of the Alexander technique could be investigated by case studies in which individuals' levels of anxiety and performing skills are monitored for a long-term period during which the subject engages in Alexander training. It is encouraging to note the application of sophisticated measurements to the technique in a number of recent studies (12). Scientific research of complementary medicine clearly benefits all concerned. Wharton & Lewith, in a recent study in Avon (13), found that 22% of general practitioners considered the lack of scientific evidence on the efficacy of the techniques negatively influenced their attitude to complementary medicine.

A smaller proportion of the sample had experienced solely mental or psychological techniques, viz. self-hypnosis. 3 respondents (10%) expressed interest in learning about meditation, indicating that there is probably a small 'market' for it.

It is possible that our figures overestimate the proportion of musicians practising complementary medicine, as those practising such techniques would be more interested in the questionnaire package and therefore more likely to respond.

The high mean score for trait anxiety in our sample may be explained by any of the following: (i) The sample were a particularly anxious subgroup as evidenced by their returning the questionnaires. (ii) 'Absent experimenter' bias—the fact that the questionnaires were posted may have been perceived as threatening by some subjects, possibly resulting in exaggerated self-perceptions of trait anxiety, although this seems somewhat unlikely. The method does however eliminate any potential problems of experimenter bias arising from the physical presence of the experimenter, as communication is standardised in the form of a letter. (iii) Musicians are anxious people in a stressful occupation. That this interpretation is the most likely is supported by the results of other studies, such as those of Kemp (14), who found that anxiety scores of professional performing musicians on Cattell's 16 personality factor inventory were significantly higher than the norms. He also found that greater anxiety distinguished music from non-music students and talented from non-talented school musicians.

The lower extraversion scores of our male sample are also in accord with his results. He found that higher introversion scores distinguished musicians across the age span from school pupils to professional performers.

The fact that performance anxiety correlated highly with both state and trait anxiety in our study provides some validation for the PAI as a measuring

instrument. Further studies and a re-wording of the questionnaire would be necessary to determine how performance anxiety varies with elevations in state anxiety. This could be achieved by monitoring a musician's anxiety over a period of several days: sometime before, immediately before and after a concert performance, for example. Further research could determine to what extent the instrument is a satisfactory indicator of an individual's perceived level of trait anxiety or that component of trait anxiety which is specifically related to performing.

The lower correlation of PAI scores with years of experience and age suggests that age, which determines experience, is of lesser importance in determining performance anxiety. There are other demographic factors which remain to be investigated, and which may only act as generators of anxiety for certain individuals. One such factor is the type of music played. Jazz music involves a different type of concentration and co-operation with one's fellow musicians and different tensions are inherent in it. The nature of anxiety may therefore be different—memory problems, for example, are almost irrelevant to a jazz musician. Lehrer's study (4) could be repeated with jazz musicians. Certain types of players may be more prone to anxiety than others, for example if the instrument is a prominent solo instrument or involves particular physical tensions. See, for example, Davies (15). Particular factors like these will vary from person to person.

In conclusion, our study has provided preliminary data on the use of complementary medical techniques amongst musicians. We intend to investigate the efficacy of some of these in future work. The study also provided validation for the Performance Anxiety Inventory as a measuring instrument. The high levels of anxiety observed in this sample are consistent with the results of previous studies and underline the need for the development of techniques to alleviate it amongst performers.

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BOOK REVIEWS

THE INNER GAME OF MUSIC

by Barry Green with Timothy Gallwey (Anchor Press/Doubleday/New York) Pan Books Ltd. £3.95

Barry Green has been Principal Double Bass Player with the Cincinnati Symphony Orchestra for many years while co-author, Timothy Gallwey is well known in the US for his books on sport—*The Inner Game of Tennis*, *Inner Skiing* and *The Inner Game of Golf*. The *Inner Game of Music* provides a fascinating and unusual collaboration between these two experts in different fields in which they have taken certain principles which have proved highly successful when used in sports and have applied them to music. The central preoccupation of their book is the way in which many musicians fail to realize their full potential because of an insidious psychological interference, an inhibiting factor, which constantly gets in the way, a nagging voice which, however subconsciously or subtly, succeeds in ensnaring the performer's true capabilities.

The term "Inner Game" in the title of this book, refers therefore to a varied and resourceful set of techniques and strategies which can be used to counteract these negative forces from within and to unleash the sort of positive thinking which will enhance and nourish the performer's development, both technical and musical. The "Inner Game", the game that one plays within one's own psyche has thus to co-exist with the "Outer Game" which involves the outward manifestations of music-making. It is also worth noting that the authors adopt a direct and uncomplicated style with a practical and down-to-earth approach to problems which often appear to be anything but straightforward.

Tim Gallwey points out that we are playing the Inner Game every day, whether we are aware of it or not, "and winning or losing it every moment". He also states that "our performance of any task depends as much on the extent to which we interfere with our abilities as it does on those abilities themselves". He reduces this to a neat little formula: $P=p-i$ or **Performance equals potential minus interference**. The authors regard interference as belonging to "Self 1", the negative self, whereas "Self 2" consists of "the vast reservoir of potential within each one of us. It contains our natural talents and abilities, and is a virtually unlimited resource that we can tap and develop. Left to its own devices, it performs with gracefulness and ease". In the context of this book the terms *Self 1* and *Self 2* should not be taken as corresponding to the left and right hemispheres of the brain nor, for that matter, to the concepts of "conscious and unconscious". Each *Self* exists in both hemispheres and each operates on a conscious, subconscious or unconscious level.

Self 1 is defined in purely practical terms—i.e. its capacity for interfering—not according to a more elaborate psycho-analytic, moral, aesthetic or neurological system. Its characteristics are therefore extremely varied and it is, moreover, crucially important to be able to identify these diverse manifestations of *Self 1* so as to counteract their effects. Self-doubt, low self-esteem, fears about possible memory-lapses, anxiety about possible technical inadequacies, worrying about adverse audience reactions are all familiar feelings encountered shortly (or even a considerable time) before or during a performance. Another preoccupation might be fears that even if everything

went well, one's parents would still be disappointed that one hadn't gone in for business instead of music.

Self 1 may on the other hand operate in a way that seems more trivial with thoughts such as "I need to get to the shops before dinner" or perhaps "Did I remember to pay the gas bill?". Whatever the nature of the interference its presence alone is enough to impede or destroy concentration. A capacity for intense concentration is surely one of the most important factors in connection with the realization of one's full potential. It is equally important whether in a concert situation or during preparation and practice leading up to a performance. *Barry Green* suggests speaking interfering thoughts out aloud identifying them and focusing on them more clearly so as to reduce or even better to eliminate their tendency to cause distractions. Needless to say, the adverse influences of *Self 1* are not purely mental; often the physical consequences are more obviously alarming—such as profuse sweating, violently shaking fingers or arms, loss of sensitivity in the fingers, severe bodily tension etc. Likewise the two authors offer much valuable advice here too.

The reader is given an anecdote about a viola player whose hands were shaking so much that she could not hold the bow steady. Tim Gallwey asked her to put down her viola and show her shaking hands to the audience. He then asked her to tell him which hand was shaking more and which fingers were shaking most; he then asked her to describe the pattern of her shaking to the audience and to tell them whether it was vertical, horizontal or circular and whether it was steady or erratic. Tim later asked the audience whether it was okay for her right first finger to go on shaking. They told her it was. By letting the viola player become aware of each aspect of the shaking and by allowing her to accept the problem as it was, the actual problem itself ended up by disappearing. As with the process of speaking interfering thoughts out aloud this little anecdote is an example of what the authors call **The Power of Awareness**—one of the basic strategies of the Inner Game. A comparable example of this is found in another anecdote entitled *Permission to Fail Leads to Success* in which a young 'cellist finally accomplishes a difficult shift successfully after previously making a hash of it. *Barry Green* sums it up thus: *When Mary-Helen gave herself permission to fail, it allowed her to stop trying. Her lack of trying, in turn, released the tension that was blocking her execution of the shift.*

Mr. Green considers that Inner Game techniques can lead us to an ideal state of being characterized by "Relaxed Concentration". This state—the "master skill" of the Inner Game "makes it easier for us to perform at our potential by arousing our interest, increasing our awareness and teaching us to discover and trust our built-in resources and abilities. It is a state in which we are alert, relaxed, responsive and focused". As with meditation, the degree of absorption in the music when in this state can make one lose all sense of time.

One of these techniques is summed up in the **P.E.L. Triangle**, the three corners of which stand for *Performance*, *Experience* and *Learning*. This involves creating an equilibrium between these different sets of criteria. In goal-orientated activities (including music) it is all too easy for considerations like success and achievement to be the dominating force. If however we are aware of "the quality of our experience while we are doing it" and "what

we are learning as we do it" then we will be able to reap the full benefits of anything we are doing. When, on the other hand, one or more of the elements of the *P.E.L. Triangle* get neglected, then "things tend to come unglued".

Shortly afterwards the book provides another triangle, this time representing the skills of *Awareness*, *Will* and *Trust* which, if they can co-exist in a comparable equilibrium will confer all sorts of benefits. This triangle will in turn help to sustain and enhance the *P.E.L. Triangle* and will, furthermore, bring the ideal state of "enhanced concentration" that much closer.

In addition to the examples mentioned earlier, the chapter on *Awareness* provides further interesting advice with *Barry Green* quite rightly stating that "Many musicians find that there is a big difference between the way they play when they are trying and when they are simply being aware. The awareness mode encourages the conscious mind to listen to what's happening, and this increases the amount of feedback we receive, which allows positive changes to occur almost without effort". Here as elsewhere there are many perceptive comments about "trying too hard". Another aspect of *awareness* is the possibility of deliberately increasing and decreasing muscular tension, noting the differences in the way one's muscles feel and in due course finding thereby the optimum amount of tension just as one focuses a camera—as well as finding out which muscles get in the way. Increased awareness may also serve to pinpoint "the problem behind the problem" since musicians at just about every level of attainment can easily confuse cause and symptom. *Barry Green* also encourages "paying attention to what you know" and to your own emotional responses in order to achieve a more compelling interpretation.

In an earlier chapter *Mr. Green* had pointed out how the pursuit of goal-orientated activities can have adverse consequences; that is not, of course, to say that goals should not be pursued and in his chapter on **The Power of Will**, he underlines the importance of having goals and objectives, both short-term and long-term. This has the effect of making one's practice structured and helps to prevent it becoming, as it can so easily, a mindless, mechanical routine in which one goes over the piece again and again in the hope that somehow one will eventually play the notes accurately and that everything, both interpretative and technical, will in the end fall into place. Likewise in a concert situation *Will* can be used to put over one's musical message with greater impact, urgency and intensity.

The next chapter is entitled **The Power of Trust**; the author is at pains to indicate that he is not of course talking about "blind trust" here. We may well infer that *Awareness* has already provided that realism and honesty to counteract "blind trust". What is at issue here is the trust which comes from dedication, hard work and "knowing there is music inside you". *Barry Green* tells an anecdote about himself in which he messed up a double bass solo in Mahler's First Symphony because, while he applied the *Inner Game* techniques of *Awareness* and *Will*, he had "forgotten" to trust himself. He has further interesting things to say about *Self 1 Control* and *Self 2 Control*, the latter sometimes being described quite unfairly as "feeling out of control". He also quotes Yehudi Menuhin as saying that *Our control is best when we are least aware of it*. There are observations about "letting go" and exercises for developing appropriate "letting go" techniques. He demonstrates per-

susively how one may, by letting go, extend the frontiers of one's abilities as one previously considered them to be.

In a later chapter he refers to "continual creativity" with the following remarks: "yesterday's inventive and successful technique is stale today, in much the same way that yesterday's successful interpretation is today's repeat performance. Certainly we should be aware of the feeling and phrasing of a fine performance but we should build on them, so that each performance is literally a re-creation of the music".

Barry Green also discusses the Inner Game principles in relation to ensemble playing, composing, simply listening to music and has much useful advice for teachers who can easily trigger the adverse interference of *Self 1* without realising what they are doing.

An original, resourceful and thought-provoking book—I suppose the next step might be a series of collaborations with experts in each instrument and each field of musical activity in turn so as to apply Inner Game principles in an even more detailed and specific fashion. How about a book on the piano repertoire in which the Inner Game was discussed in relation to the interpretative and pianistic challenges of the Hammerklavier Sonata, the Paganini Variations, Feux Follets, the Polonaise-Fantaisie, Gaspard de la Nuit, or, in our own time the Boulez Second Sonata or Tippett's Fourth Sonata?

Roger Green

Performer, Lecturer City Literary Institute, London, Prof Trinity College of Music.

SYMPOSIUM CARE OF THE PROFESSIONAL VOICE

This important seminar was organised by *Mr D. Garfield-Davies*, Consultant Otolaryngologist and Director of the 'Voice Clinic', at Middlesex Hospital Medical School, University of London, on 29th October 1987.

Specialists in the field of otolaryngology as well as other therapists (Voice, Alexander Technique, Relaxation) presented valuable communications and the participants were introduced to some highly sensitive diagnostic instruments. A panel — which included *Sir Gerraint Evans*, *Donald Sinden*, *Ian Wallace* and *Bardy Thomas*, with *Mr Garfield-Davies* in the Chair — answered the questions raised from the floor. Future seminars are planned jointly by ISSTIP and the VOICE CLINIC. Details from ISSTIP Secretary.

ISSTIP

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The International Society for the Study of Tension in Performance was formed in September 1981 in response to an overwhelming concern with the debilitating effects of excess anxiety and tension experienced by performers in many areas such as music, the theatre, the sportsfield, public debate and the like.

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